

APPARATUS AND METHOD FOR SELECTING CLOSING INFORMATION AND
STATIONERY FOR AN ELECTRONIC MAIL MESSAGE BASED ON THE
INTENDED RECIPIENT

1. Technical Field:

2. Description of Related Art:

In some of these electronic mail programs, a functionality is provided that allows a composer of an electronic mail message to define closing information and select a stationery to be used with the electronic mail message. The closing information may include a text message and/or graphic that is appended to the end of the electronic mail message when the electronic mail message is composed and/or sent. The stationery is basically a graphical

background on which the electronic mail message is superimposed.

While the prior art electronic mail programs allows a composer to input closing information and select a stationery to be used, the closing information and stationery are global variables. That is, the closing information and stationery used for all electronic mail messages is the same until the composer redefines the closing information and stationery. Thus, if the composer of the electronic mail messages wants to use a different closing and/or stationery for the electronic mail messages, he/she must redefine the closing information and select a different stationery for each electronic mail message. There is no ability for defining different closing information and/or stationery for different types of electronic mail messages and have the electronic mail program determine which closing information and/or stationery to use for these different types of electronic mail messages.

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SUMMARY OF THE INVENTION

The present invention provides an apparatus and method for selecting closing information and stationery for an electronic mail message based on the intended recipient. The present invention allows a user, or electronic mail message composer, to define closing information and/or stationery for individual recipients, groups of recipients, domain name categories, and the like. In this way, when the user composes a new electronic mail message and enters the electronic mail address of the recipient, the electronic mail program of the present invention automatically determines which closing information and stationery to use with the new electronic mail message.

If the user has not designated the closing information and/or stationery for a particular recipient, a default closing information and/or stationery may be used instead. Likewise, if there are a plurality of recipients having different closing information and/or stationery settings, a default closing information and/or stationery setting may be used. Alternatively, if there are a plurality of recipients, each recipient may receive a different version of the electronic mail message having the same composed content but different closing information and/or stationery.

These and other features and advantages of the present invention will be described in, or will become apparent to those of ordinary skill in the art in view of, the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the
5 invention are set forth in the appended claims. The
invention itself, however, as well as a preferred mode of
use, further objectives and advantages thereof, will best be
understood by reference to the following detailed
description of an illustrative embodiment when read in
10 conjunction with the accompanying drawings, wherein:

Figure 1 is an exemplary diagram illustrating a
distributed data processing system in accordance with the
present invention;

Figure 2 is an exemplary diagram illustrating a server
15 data processing device in accordance with the present
invention;

Figure 3 is an exemplary diagram illustrating a client
data processing device in accordance with the present
invention;

Figure 4 is an exemplary block diagram of the primary
20 operational components of the present invention;

Figure 5 is an exemplary diagram of an electronic mail
program interface for adding a new contact and designating
closing information and a stationery for the new contact in
25 accordance with the present invention;

Figure 6 is an exemplary diagram of an electronic mail
program interface for adding a new group of contacts and
designating closing information and a stationery for the
group of contacts in accordance with the present invention;

Figure 7 is an exemplary diagram of an electronic mail
30 program interface for adding a new domain name category and

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designating closing information and a stationery for the domain name category in accordance with the present invention;

Figure 8 is an exemplary diagram of an electronic mail program interface in which new electronic mail message closing information may be created in accordance with the present invention;

Figure 9 is an exemplary diagram of an electronic mail program interface in which new electronic mail message stationery may be created in accordance with the present invention; and

Figure 10 is a flowchart outlining an exemplary operation of the present invention when determining which closing information and stationery to use with an outgoing electronic mail message.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the figures, **Figure 1** depicts a pictorial representation of a network of data processing systems in which the present invention may be implemented. Network data processing system **100** is a network of computers in which the present invention may be implemented. Network data processing system **100** contains a network **102**, which is the medium used to provide communications links between various devices and computers connected together within network data processing system **100**. Network **102** may include connections, such as wire, wireless communication links, or fiber optic cables.

In the depicted example, server **104** is connected to network **102** along with storage unit **106**. In addition, clients **108**, **110**, and **112** are connected to network **102**. These clients **108**, **110**, and **112** may be, for example, personal computers or network computers. In the depicted example, server **104** provides data, such as boot files, operating system images, and applications to clients **108-112**. Clients **108**, **110**, and **112** are clients to server **104**. Network data processing system **100** may include additional servers, clients, and other devices not shown. In the depicted example, network data processing system **100** is the Internet with network **102** representing a worldwide collection of networks and gateways that use the TCP/IP suite of protocols to communicate with one another. At the heart of the Internet is a backbone of high-speed data communication lines between major nodes or host computers, consisting of thousands of commercial, government, educational and other computer systems that route data and

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messages. Of course, network data processing system **100** also may be implemented as a number of different types of networks, such as for example, an intranet, a local area network (LAN), or a wide area network (WAN). **Figure 1** is intended as an example, and not as an architectural limitation for the present invention.

Each of the client devices **108-112** are equipped with an electronic mail program according to the present invention. The server **104** acts as an electronic mail server through which electronic mail communication between the client devices **108-112** is facilitated in a known manner. The users of the client devices **108-112** may make use of the functionality of the present invention, implemented as software instructions in the electronic mail programs of the client devices **108-112**, to designate closing information and/or stationery for various recipients, groups of recipients, domain names, and the like.

While in the preferred embodiment the present invention is implemented as software instructions that are incorporated as part of an electronic mail program in client devices, the present invention is not limited to such an embodiment. Rather, the present invention may be implemented in a central server that is accessible by users via client devices and a data network. Moreover, the present invention may be implemented in software, hardware, or a combination of software and hardware.

Referring to **Figure 2**, a block diagram of a data processing system that may be implemented as a server, such as server **104** in **Figure 1**, is depicted in accordance with a preferred embodiment of the present invention. Data processing system **200** may be a symmetric multiprocessor

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(SMP) system including a plurality of processors **202** and **204** connected to system bus **206**. Alternatively, a single processor system may be employed. Also connected to system bus **206** is memory controller/cache **208**, which provides an interface to local memory **209**. I/O bus bridge **210** is connected to system bus **206** and provides an interface to I/O bus **212**. Memory controller/cache **208** and I/O bus bridge **210** may be integrated as depicted.

Peripheral component interconnect (PCI) bus bridge **214**
10 connected to I/O bus **212** provides an interface to PCI local
bus **216**. A number of modems may be connected to PCI local
bus **216**. Typical PCI bus implementations will support four
PCI expansion slots or add-in connectors. Communications
links to clients **108-112** in **Figure 1** may be provided through
15 modem **218** and network adapter **220** connected to PCI local bus
216 through add-in boards.

Additional PCI bus bridges **222** and **224** provide interfaces for additional PCI local buses **226** and **228**, from which additional modems or network adapters may be supported. In this manner, data processing system **200** allows connections to multiple network computers. A memory-mapped graphics adapter **230** and hard disk **232** may also be connected to I/O bus **212** as depicted, either directly or indirectly.

25 Those of ordinary skill in the art will appreciate that the hardware depicted in **Figure 2** may vary. For example, other peripheral devices, such as optical disk drives and the like, also may be used in addition to or in place of the hardware depicted. The depicted example is not meant to

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imply architectural limitations with respect to the present invention.

The data processing system depicted in **Figure 2** may be, for example, an IBM e-Server pSeries system, a product of International Business Machines Corporation in Armonk, New York, running the Advanced Interactive Executive (AIX) operating system or LINUX operating system.

With reference now to **Figure 3**, a block diagram illustrating a data processing system is depicted in which the present invention may be implemented. Data processing system **300** is an example of a client computer. Data processing system **300** employs a peripheral component interconnect (PCI) local bus architecture. Although the depicted example employs a PCI bus, other bus architectures such as Accelerated Graphics Port (AGP) and Industry Standard Architecture (ISA) may be used. Processor **302** and main memory **304** are connected to PCI local bus **306** through PCI bridge **308**. PCI bridge **308** also may include an integrated memory controller and cache memory for processor **302**. Additional connections to PCI local bus **306** may be made through direct component interconnection or through add-in boards. In the depicted example, local area network (LAN) adapter **310**, SCSI host bus adapter **312**, and expansion bus interface **314** are connected to PCI local bus **306** by direct component connection. In contrast, audio adapter **316**, graphics adapter **318**, and audio/video adapter **319** are connected to PCI local bus **306** by add-in boards inserted into expansion slots. Expansion bus interface **314** provides a connection for a keyboard and mouse adapter **320**, modem **322**, and additional memory **324**. Small computer system interface (SCSI) host bus adapter **312** provides a connection

An operating system runs on processor 302 and is used to coordinate and provide control of various components within data processing system 300 in **Figure 3**. The operating system may be a commercially available operating system, such as Windows 2000, which is available from Microsoft Corporation. An object oriented programming system such as Java may run in conjunction with the operating system and provide calls to the operating system from Java programs or applications executing on data processing system 300. "Java" is a trademark of Sun Microsystems, Inc. Instructions for the operating system, the object-oriented operating system, and applications or programs are located on storage devices, such as hard disk drive 326, and may be loaded into main memory 304 for execution by processor 302.

Those of ordinary skill in the art will appreciate that the hardware in **Figure 3** may vary depending on the implementation. Other internal hardware or peripheral devices, such as flash ROM (or equivalent nonvolatile memory) or optical disk drives and the like, may be used in addition to or in place of the hardware depicted in **Figure 3**. Also, the processes of the present invention may be applied to a multiprocessor data processing system.

As another example, data processing system **300** may be a stand-alone system configured to be bootable without relying on some type of network communication interface, whether or not data processing system **300** comprises some type of network communication interface. As a further example, data

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processing system **300** may be a Personal Digital Assistant (PDA) device, which is configured with ROM and/or flash ROM in order to provide non-volatile memory for storing operating system files and/or user-generated data.

5 The depicted example in **Figure 3** and above-described examples are not meant to imply architectural limitations. For example, data processing system **300** also may be a notebook computer or hand held computer in addition to taking the form of a PDA. Data processing system **300** also
10 may be a kiosk or a Web appliance.

As mentioned above, the present invention provides a mechanism through which users may designate closing information and/or stationery for various recipients, groups of recipients, domain names, and the like. In so doing, the
15 present invention may automatically append appropriate closing information and stationery to an outgoing electronic mail message based on the intended recipient(s) of the electronic mail message.

The user of the present invention may designate various
20 closing information that may be used with electronic mail messages. The present invention provides an interface through which the user may insert text of the closing information and designate files representing graphics to be added to the closing information. This closing information
25 may then be stored in a data structure associated with the electronic mail program. The registry of available closing information may then be updated to include an identifier of the new closing information. In this way, the new closing information will be included as an optional closing
30 information when new contacts, groups of contacts, domain names, and the like are defined by the user.

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With the present invention, a user may add a new contact to his/her electronic mail address book using an electronic mail program interface. In adding the new contact, the user may designate the electronic mail address
5 of the new contact, a stationery to be used with electronic mail messages sent to the new contact, closing information to be appended to the end of electronic mail messages sent to the new contact, whether or not spell check should be performed on electronic mail messages to the new contact,
10 and the like. The selected settings of these various parameters for the new contact may then be stored in a data structure associated with the electronic mail program. In this way, electronic mail message recipient profiles may be generated and stored for later use in composing and
15 transmitting electronic mail messages to these recipients.

In addition to adding individual recipients by adding a new contact, the present invention further provides an ability to define groups of contacts. Each group of contacts may further have specific stationery, closing
20 information, spell check options, and the like, designated for the group. This information may be stored in a data structure associated with the electronic mail program.

Thus, for example, if an electronic mail message is composed and the recipient is designated to be the group
25 "Family and Friends," all recipients in the group "Family and Friends" will receive the electronic mail message formatted in the same manner. In this way, if a group is selected as a recipient of an electronic mail message, each recipient in the group will receive an electronic mail
30 message formatted according to the group specifications.

Moreover, the present invention provides an ability to designate domain names and associated electronic mail

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message formats, i.e. closing information, stationery, whether to use spell check, and the like. This information may also be stored in a data structure associated with the electronic mail program.

5 Thus, a user may designate that all electronic mail messages sent to contacts having the domain name "ibm.com" in their electronic mail address will have a designated format. Thus, for example, if electronic mail messages are sent to steve@ibm.com and joe@ibm.com, both of these
10 messages will have the same closing information and/or stationery, spell check options, and the like, because they both have the domain name "ibm.com".

In addition to selecting the parameters of closing information, stationery and whether to use spell check or
15 not, the present invention may provide a user with any number of other parameters that may be set for various recipients, groups of recipients, domain names and the like.

For example, the present invention may allow a user to designate the type of font, the color of the font, the size
20 of the font, spacing between lines of text, and the like, to be used with electronic mail messages sent to various recipients. The selection of such parameters may be made when defining the new closing information and stationery or may be made as a selection of parameters outside that of the
25 new closing information and stationery. In so doing, rather than having all electronic mail messages use the same settings, the electronic mail messages may be customized based on the intended recipient(s).

With the present invention, when a user composes an
30 electronic mail message, the user typically enters one or more recipient electronic mail addresses (such as steve@ibm.com), or contact identifiers (such as "Steve"

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which is then correlated to "steve@ibm.com" using the address book in a manner generally known in the art), enters a text body for the electronic mail message, and designates any desired attachments to the electronic mail message.

The look-up of the electronic mail address may be performed based on the number of recipients identified in the electronic mail message. For example, if there are a plurality of recipients, the look-up may first determine if the recipients are part of a defined group of recipients. If so, the group settings may be used to format the electronic mail address. If the recipients are not part of a defined group, it may be determined whether the recipients have a same domain name in their electronic mail addresses.

If the domain name is not found, a default format may be utilized.

If the recipients have different domain names and are
25 not part of a defined group, each recipient may be looked-up
to identify associated settings. If the recipient is found
in the associated data structures, the recipient's settings
are retrieved and compared to the other recipients'
settings. If a recipient is not found in the associated
30 data structure, the default settings may be retrieved for
this recipient.

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The settings are then compared to determine if they are compatible. That is, a determination is made as to whether the settings for the recipients include the same closing information, same stationery, same font, same font color, 5 etc. Some parameters may be compatible even if they are not the same among various recipients. For example, if any one of the recipients has the spell check option enabled and other ones of the recipients do not have this option enabled, rather than holding the recipient settings as 10 incompatible, the present invention may enable the spell check option for all of the recipients.

This same ability may be applied to font type, font color, and the like. For example, if a majority of the recipients make use of a particular font type or font color, 15 the font type or font color of the electronic mail message for all recipients may be set to this font type and font color. Alternatively, strict compatibility may be required and thus, any difference in the settings for the recipients will result in incompatibility of the settings.

20 It should be noted that a recipient may be an individual recipient, a member of a defined domain name group, and a member of a defined group of recipients. As such, one recipient may have a plurality of different groups of settings. The present invention may retrieve each of 25 these groups of settings and compare them to each of the groups of settings of the other designated recipients to determine if any combination of groups are identical. That is, the domain name group settings for a first recipient may match the defined group settings of another recipient and 30 thus, this matching group of settings, i.e. this compatible group of settings, will be utilized to format the electronic mail message.

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If the recipient settings are not compatible, a default setting may be used to format the electronic mail message. In an alternative embodiment, if the recipient settings are not compatible, each recipient receives a copy of the
5 electronic mail message that is formatted to his/her specific settings. Thus, each recipient receives a different version of the electronic mail message with the subject matter of the electronic mail message being identical but the format being different. Prior to actual
10 sending of the different versions of the electronic mail message, the composer of the electronic mail message may be provided with the opportunity to review each version in order to determine whether each version meets with the composer's approval.

15 If the recipient settings are compatible, or if only a single recipient is designated, the settings are used to format the electronic mail message prior to sending the electronic mail message to the recipient(s). Such formatting may include appending the designated closing
20 information, changing the stationery on which the electronic mail message is superimposed, changing the font of the electronic mail message, changing the color of the font, and the like. The formatting of the electronic mail message based on these settings may be performed prior to the user
25 initiating the transmission of the electronic mail message or may be performed in response to the user initiating the transmission of the electronic mail message.

If performed prior to transmission, the user may be provided with an option to review the reformatted electronic
30 mail message prior to transmission.

The functions of the present invention outlined above may be performed whenever an electronic mail message is

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being sent to a recipient. This may include generating a new electronic mail message or replying to a received electronic mail message. In either case, the operations of the present invention will be performed to thereby,
5 automatically format the electronic mail message according to the defined settings for the recipients.

Figure 4 is an exemplary block diagram illustrating the primary operational components of the present invention. The operational components shown in **Figure 4** may be
10 implemented in software, hardware, or a combination of software and hardware without departing from the spirit and scope of the present invention.

As shown in **Figure 4**, the customized electronic mail apparatus of the present invention includes a controller
15 **410**, an interface **420**, a contact data structure editing device **430**, a contact data structure storage device **440**, and an electronic mail message formatting device **450**. The components **410-450** are coupled to one another via the control/data signal bus **460**. Although a bus architecture is
20 shown in **Figure 4**, the present invention is not limited to such and any mechanism for facilitating the exchange of control and/or data signals between the components **410-450** may be used without departing from the spirit and scope of the present invention.

25 The controller **410** controls the overall operation of the customized electronic mail apparatus and orchestrates the operation of the other components **420-450**. The controller **410** provides the primary electronic mail program interfaces to the client device via the interface **420**,

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either directly or through a data network, and receives input from the user of the client device via the interface **420**.

The contact data structure editing device **430** operates in response to a user input to edit available contact information, create a new contact, or edit the settings of an existing contact. The contact data structure editing device **430** operates to provide the user of the client device with various electronic mail program interfaces for defining new closing information, new contact information and settings, and edit existing contact information and settings.

The contact data structure storage device **440** stores the contact information and settings in a data structure that is searchable by the present invention. When a new electronic mail message is being generated, or a reply to a received electronic mail message is being generate, the electronic mail message formatting device **450** receives the electronic mail addresses of the intended recipients and performs a look-up of these recipient addresses using the data structure(s) in the contact data structure storage device **440** in the manner previously described. The electronic mail message formatting device **450** then resolves any discrepancies between the settings of the recipients, as discussed above, and reformats the electronic mail message prior to transmitting it to the recipients. The reformatted electronic mail message is then transmitted by the controller **410** to the designated recipients via the interface **420**, or other network interface (not shown).

Figure 5 is an exemplary diagram illustrating an electronic mail program interface for adding a new contact

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according to the present invention. As shown in **Figure 5**, the primary electronic mail program interface **510** includes a virtual button **520** that is selectable by a user, via a pointing device, to thereby initiate an operation to add a new contact to the contact data structure. When the virtual button **520** is selected, a subsequent electronic mail program interface **530** is presented having various tabs **531-534**. The tabs provide various options that may be selected by the user, in a manner that is generally known in the art.

One tab includes selectable options through which the user may designate the closing information, stationery, whether to use spell check, and the like, with electronic mail messages set to this contact. To select the closing information and stationery, the user need only select the virtual "down arrow" button to receive a listing of the possible closing messages and stationeries. This listing may include a "none" option as well as a "default" option in addition to customized options that have been defined by the user. Moreover, the listing may further include an option to generate new closing information for this contact, as will be discussed in greater detail hereafter.

Figure 6 is an exemplary diagram of an electronic mail program interface for defining a group of contacts or recipients. As shown in **Figure 6**, the primary electronic mail program interface **610** may include a virtual button **620** for adding a new group to the contact data structure. In response to selection of the virtual button **620**, a new electronic mail program interface **630** is presented to the user providing him/her with the ability to designate the attributes of a new group of contacts or recipients. As shown in **Figure 6**, this new electronic mail program

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interface **630** includes fields for designating the name of the group, the group type, a description of the group, the members of the group, closing information to be used with this group, stationery to be used with this group, whether to use spell check with this group, and the like.

Figure 6 further illustrates the drop down menu that is provided with the "down arrow" virtual button is selected to thereby obtain a listing of possible closing information. As shown in **Figure 6**, this drop down menu includes a listing of the available closing information as well as a virtual button **640** for initiating the definition of new closing information.

Figure 7 is an exemplary diagram illustrating an electronic mail program interface for defining a new domain name category. As shown in **Figure 7**, the primary electronic mail program interface **710** may include a virtual button **720** that is selectable to initiate a function for defining a new domain name category. When the virtual button **720** is selected, a new electronic mail program interface **730** is provided to the user through which the user may define the new domain name category. The new electronic mail program interface **730** may include a field for entering the domain name, a field for selecting closing information for this domain name, a field for selecting the stationery for this domain name, a field for selecting whether to use spell check for this domain name, and the like. Moreover, when the "down arrow" virtual buttons are selected, a drop down menu listing of available selections is provided similar to that shown in **Figure 6**.

As mentioned previously, the listing of possible selections of closing information may include an option for

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defining new closing information for electronic mail recipients. **Figure 8** is an exemplary diagram illustrating an electronic mail program interface for defining new closing information for an electronic mail. As shown in **Figure 8**, the interface includes a field **810** for designating a name of the closing information, one or more fields **820** for inputting the text of the closing information, a virtual button **830** for initiating the attachment of a graphic file to the closing information, and a sample view portion **840** for viewing a sample of the closing information. Using this interface, the user may input a name for the closing information, the text for the closing information, a graphic to be included (if desired), and see the resulting closing information prior to saving it for use with subsequent electronic mail messages.

Figure 9 is an exemplary diagram illustrating an electronic mail program interface for defining new stationery. As shown in **Figure 9**, the electronic mail program interface **900** includes options to set font type **910**, paragraph style **920** and delivery options **930**. In addition, the electronic mail program interface **900** may be modified to provide the options to add a water mark, background figure, and the like, to the new stationery.

The electronic mail program interfaces shown in **Figures 5-9** are used to define the closing information, stationery, spell check option, and the like, for one or more recipients, groups of recipients, domain name categories, and the like. Once these settings are designated, they may be used to customize electronic mail messages based on the intended recipients of the electronic mail message. The present invention includes functionality for automatically

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determining a format for the electronic mail message based on the designated intended recipient(s).

Figure 10 is a flowchart outlining an operation of the present invention when determining what electronic mail message format settings to use with an outgoing electronic mail message. As shown in **Figure 10**, the operation starts with an initiation of the customization function of the present invention (step **1010**). Customization settings for the recipients designated in the electronic mail message are retrieved (step **1020**). Such retrieval may include retrieving customization settings for the individual recipients, groups to which the recipients belong, domain names of the electronic mail addresses of the recipients, and the like. If customization settings are not stored for a particular recipient, default customization settings may be used.

A determination is then made as to whether there is more than one recipient designated for the electronic mail message (step **1030**). If not, the customization settings for the recipient (or default settings depending on the circumstances) are used to reformat the electronic mail message (step **1080**). If there is more than one recipient designated, a determination is made as to whether any combination of settings for the recipients results in a match of the settings (step **1040**).

If there is a match (step **1050**), the matching settings are used to reformat the electronic mail message for all of the recipients (step **1060**). If there is not a match (step **1050**), the electronic mail message is reformatted using default settings (step **1090**). In an alternative embodiment, rather than determining if there is a match and reformatting

using the matching settings, each individual recipient may receive a separate copy of the electronic mail message that is reformatted to his/her specific settings.

It is important to note that while the present invention has been described in the context of a fully functioning data processing system, those of ordinary skill in the art will appreciate that the processes of the present invention are capable of being distributed in the form of a computer readable medium of instructions and a variety of forms and that the present invention applies equally regardless of the particular type of signal bearing media actually used to carry out the distribution. Examples of computer readable media include recordable-type media such as floppy disc, a hard disk drive, a RAM, and CD-ROMs and transmission-type media such as digital and analog communications links.

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The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations 5 will be apparent to those of ordinary skill in the art. The embodiment was chosen and described in order to best explain the principles of the invention, the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with 10 various modifications as are suited to the particular use contemplated.

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